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EXAMINER

VITAL, PIERRE M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2188

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/551,799

Applicant(s)

KOTA, YOSHIHIRO

Examiner

Pierre M. Vital

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27,150-154,157-161 and 164-168 is/are rejected.
- 7) ☒ Claim(s) See Continuation Sheet is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-154,157-161,164-168,171,172,174-178,181-185,188,189,191-195,198-202,205,206,208-212,215-219,222-226,229-233,236-240,243,244,246-250,253-257,260,261,263-267,270-274,277,278,280-284 and 287-291.

Continuation of Disposition of Claims: Claims objected to are 28-149,171,172,174-178,181-185,188,189,191-195,198-202,205,206,208-212,215-219,222-226,229-233,236-240,243,244,246-250,253-257,260,261,263-267,270-274,277,278,280-284 and 287-291.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) filed October 9, 2003 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Amendment

2. This Office Action is in response to applicant's communication filed August 29, 2003 in response to PTO Office Action mailed June 6, 2002. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.

3. Claims 1-293 have been presented for examination in this application. In response to the last Office Action, claims 1-9, 11-154, 157-161, 164-168, 172, 222-226, 229-233, 236-240, 243, 244, 246-250, 253-257, 260, 261, 263-267, 270-274, 277, 278, 280-284 and 287-291 have been amended. Claims 155, 156, 162, 163, 169, 170, 173, 179, 180, 186, 187, 190, 196, 197, 203, 204, 207, 213, 214, 220, 221, 227, 228, 234, 235, 241, 242, 245, 251, 252, 258, 259, 262, 268, 269, 275, 276, 279, 285, 286, 292 and 293 have been canceled. No claims have been added. As a result, claims 1-154, 157-161, 164-168, 171, 172, 174-178, 181-185, 188, 189, 191-195, 198-202, 205, 206, 208-212, 215-219, 222-226, 229-233, 236-240, 243, 244, 246-250, 253-257, 260, 261, 263-267, 270-274, 277, 278, 280-284, 287-291 are now pending in this application.

4. The objection to claims 6 and 21-27 has been withdrawn due to the amendment filed August 29, 2003.

5. The rejection of claims 1, 2, 5, 6, 10-13, 153-156 and their dependent claims 17-20, 29-30, 34-37, 46-47, 51-54, 63-64, 68-71, 82-85, 89-92, 101-102, 106-109, 117-118, 122-125, 133-134, 138-141, 167-170, 172-173, 184-187, 189-190, 201-204, 172-173, 218-221, 225-228, 239-242, 244-245, 256-259, 261-262, 273-276, 278-279 and 290-293 under 35 USC 112, second paragraph has been withdrawn due to the amendment filed August 29, 2003.

6. The indicated allowability of claims 12, 13, 155 and 156 is withdrawn in view of the newly discovered citation(s) in the Yoshioka et al. (US5,835,963) reference of record. Rejections based on these teachings follow herewith.

Claim Objections

7. Claims are objected to because of the following informalities:

In claims 79-149, 222-226, 229-233, 236-240, 243-244, 246-250, 253-257, 260-261, 263-267, 270-274, 277-278, 280-284 and 287-291, line 5, it appears that the language "permitted to access to" should be changed to --permitted to access-- or --permitted access to--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-13, 14-20, 21-27, 150-154, 157-161 and 164-168 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshioka et al. (US5,835,963).

As per claims 1, 5, 12 and 13, Yoshioka discloses a memory address space extension device [*addresses are expanded by use of an address space identifier; col. 9, lines 60-61*] comprising a definition table defining an access right of a task ID (identification) with respect to data area [*the process number ASID in the TLB is used as memory protection information; col. 26, lines 17-19*]; a task ID register for storing therein the task ID of a task during execution [*the space number asid of the current process is set in the register 51; col. 24, lines 30-32*]; a judgement means for judging as to whether or not it is capable of being permitted that the task indicated by the task ID accesses the data area indicated by the data area ID, the judgement being made with reference to said definition table, and said judgement means judges whether or not said task is permitted access according to any one of said ID and an interruption processing number and/or a data area ID indicating the data area requested by said task [*mismatch between current process asid and process number ASID stored in TLB is utilized for detection of TLB protection fault exception; signal 503 detects a TLB protection fault exception when driven High, there is a mismatch between process numbers; col. 26, lines 17-55;].*

As per claims 2 and 6, Yoshioka discloses an address operational means for converting said CPU address into an extended address [*addresses are expanded by use of an address space identifier*; col. 9, lines 60-61], and a memory having the extended address converted previously, when said judgement means judges that judgement result according to said judgement means is a result that the task during execution accesses the data area, said address operational means executes said conversion processing while causing said memory with extended address to support [*areas marked as mapped are subject to translation based on a comparison of current process asid and process number ASID stored in TLB*; col. 9, lines 63-65; col. 25, lines 10-31].

As per claim 3, Yoshioka discloses a definition table that causes combination that access is permissible or in-permissible with respect to read and/or write to said data area respectively to be defined [*access right to areas P1 through P4 are checked to detect address error*; col. 21, lines 50 – col. 22, line 6].

As per claim 4, Yoshioka discloses a preparation means for preparing said definition table [Fig. 21, col. 21, lines 49-53].

As per claims 7 and 150, Yoshioka discloses a memory address space extension device [*addresses are expanded by use of an address space identifier*; col. 9, lines 60-61] comprising a definition table forming means for forming said definition table [Fig. 21, col. 21, lines 49-53]; a definition table defining an access right of a task with respect to data area [*the process number ASID in the TLB is used as memory protection information*; col. 26, lines 17-19]; an access right judgement means for judging whether or not it causes the

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access right to the data area requested by the task to be given with respect to the task according to said definition table [*mismatch between current process asid and process number ASID stored in TLB is utilized for detection of TLB protection fault exception*; col. 26, lines 17-55].

As per claims 8, 9 and 151-152, Yoshioka discloses a definition table that defines as to whether or not said task possesses an access right for accessing prescribed data area in every task ID given to the task [col. 21, lines 51-col. 22, line 2; col. 24, lines 9-16].

As per claims 10, 11 and 153-154, Yoshioka discloses an access right judgement means judges whether it causes the access right to the data area requested by said task to be given according to said task ID, and the data area ID indicating the data area requested by said task [col. 24, lines 9-16].

As per claims 14-20 and 157-161, Yoshioka discloses a definition table that defines whether or not it causes access to be permitted with respect to said prescribed data area in every said task [col. 21, lines 59-62].

As per claims 21-27 and 164-168, Yoshioka discloses a definition table defining causing no-access to be permitted with respect to said prescribed data area in every said task [col. 21, lines 62-67].

Allowable Subject Matter

10. Claims 28-149, 171, 172, 174-178, 181-185, 188-189, 191-195, 198-202, 205-206, 208-212, 215-219, 222-226, 229-233, 236-240, 243-244, 246-250, 253-257, 260-261, 263-267, 270-274, 277-278, 280-284 and 287-291 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

(a) The prior art of record does not teach or suggest "an interruption number generation means for generating interruption number with respect to interruption processing according to hardware" in combination with the other elements set forth in the claimed invention.

(b) The prior art of record does not teach or suggest "an interruption number generation means for generating interruption number with respect to interruption processing according to software" in combination with the other elements set forth in the claimed invention.

(c) The prior art of record does not teach or suggest "an address operational means for converting a CPU address into an extended address, and a memory having the extended address converted previously wherein said address operational means causes said CPU address to be converted into the extended address when said task is

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permitted to access a data area according to an access right judgement means, before
said memory with extended address supports said address operational means" in
combination with the other elements set forth in the claimed invention.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-
5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate
Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone
number for the organization where this application or proceeding is assigned is (703)
746-7239.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is (703) 305-
9000.

PMV

Pierre M. Vital
Art Unit 2188
December 4, 2003

Reginald G. Bragdon

REGINALD G. BRAGDON
PRIMARY EXAMINER